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10/779,421	02/13/2004	Robert H. Wollenberg	T-6320 (538-66)	9070

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EXAMINER	
GROSS, CHRISTOPHER M	
ART UNIT	PAPER NUMBER
1639	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/779,421	WOLLENBERG, ROBERT H.	
	Examiner	Art Unit	
	CHRISTOPHER M. GROSS	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Responsive to communications entered 7/15/2010. Claims 1-21 are pending. Claims 1-21 are under consideration.

Priority

The present application was filed 2/13/2004 and applicant makes no claim of benefit to any earlier application.

Withdrawn Objection(s) and/or Rejection(s)

The rejection of claims 1-3,5-9, 11-14,17-21 under 35 U.S.C. 103(a) as being unpatentable over **Francisco et al** (US Patent 5,308,522) in view of **Kolosov et al** (US Patent Application 2004/0123650 – IDS entry 2/16/2006) is hereby withdrawn in view of applicant's amendments thereto.

The rejection of claims 15,16 under 35 U.S.C. 103(a) as being unpatentable over **Francisco et al** (US Patent 5,308,522) **in view of Kolosov et al** (US Patent Application 2004/0123650 – IDS entry 2/16/2006) as was applied to claim(s) 1-3,5-9, 11-14,17-21 above, and further in view of **Chaffee et al** (US Patent 4,774,281; of record) is hereby withdrawn in view of applicant's amendments thereto claim 1.

The rejection of claims 4, 10 under 35 U.S.C. 103(a) as being unpatentable over **Francisco et al** (US Patent 5,308,522) **in view of Kolosov et al** (US Patent Application 2004/0123650 – IDS entry 2/16/2006) as was applied to claim(s) 1-3,5-9, 11-14,17-21, and 15,16 above, and further in view of **Chaffee et al** (US Patent 4,774,281; of record) taken in view of **Migdal et al** (US Patent 5,062,980; of record) to show elastomers

made of synthetic rubber and predetermined measurement thereof is hereby withdrawn in view of applicant's amendments thereto claim 1.

The rejection of claims 1-3 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No. 7,137,289 in view of Francisco et al (US Patent 5,308,522) and further view of Bailey et al (US Patent 3,108,397) is hereby withdrawn in view of applicant's amendments to the present claims.

New Claim Rejection(s) – Necessitated by Amendment

35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Francisco et al** (US Patent 5,308,522; of record) in view of **Kolosov et al** (US Patent Application 2004/0123650 – IDS entry 2/16/2006) and further in view of **Chaffee et al** (US Patent 4,774,281; of record) taken in view of **Migdal et al** (US Patent 5,062,980; of record) to show elastomers made of synthetic rubber and predetermined measurement thereof and **Wollenberg et al** (US Patent Application Publication 2008/0153716) to show computer modeling and lead candidate oil mixtures in a plurality of test receptacles having varying percentages of additives.

The claimed subject matter per claim 1 is drawn to a high throughput method for screening lubricating oil composition samples for compatibility with elastomers, under program control, comprising the steps of:

(a) conducting molecular modeling of at least one base oil of lubricating viscosity and at least one lubricating oil additive to provide leading candidates of the at least one base oil of lubricating viscosity and the at least one lubricating oil additive for combination to formulate a leading candidate lubricating oil composition sample for testing;

(b) containing a plurality the leading candidate lubricating oil composition samples comprising (i) a major amount of at least one base oil of lubricating viscosity and (ii) a minor amount of at least one lubricating oil additive in varying percentages in a plurality of test receptacles;

(c) providing at least one elastomer;

(d) measuring the elastomer compatibility of each sample to provide elastomer compatibility data for each sample; and,

(e) outputting the results of step (d).

Francisco et al teach throughout the document and especially example 3, stress activated activators (I and II) for lubricant compositions which are tested on an elastomer.

The elastomer tested is taken as the elastomer of claim 1 (c). Data concerning the compatibility of the elastomer is "output" and presented as table 2 by Francisco et al thus reading on claim 1(e). Also shown in table 2, Francisco et al teach the elastomer compatibility with the oil and additive mixture is discerned by measuring elastomer tensile strength, as compared the tensile strength prior to immersion in the oil mixture, therein reading on claim 1(d) as well as 8 and 9.

Francisco et al teach in column 2, synthetic oils per claim 2. Francisco et al teach detergents (elected species) in column 3, line 43 as set forth in claim 3. Francisco et al

teach in column 6, line 39 the elastomer is a seal (elected species) as set forth in claims 4 and 5.

Francisco et al teach in column 6, line 59 the elastomer is immersed in the test solution for a predetermined time of 96 hours at and predetermined temperature of 121 degrees C, reading on claim 6 and in the range of claim 7.

Francisco et al teach in column 6, line 61, the oil mixture is diluted with another oil, reading on claim 21.

Francisco et al do not teach sample sizes no more than 10 ml (claims 10-14), the use of a robotic assembly (claim 17), control by a computer (claim 18), storing data (claim 19) or using the data of claim 1(c) for further calculations (claim 20).

Kolosov et al teach, throughout the document and especially figure 1 and paragraph 0068 and 0082 the use of a computer and a robot which is controlled by the computer to screen, analyze, store and manipulate data generated from a library of material samples, such as set forth in claims. Said robot reads on claim 17. Said computer reads on claim 18. Said data storage is taken as necessarily inherently including a data carrier (e.g. disk, etc.), reading on claim 19. Said data manipulation reads on claim 20.

Kolosov et al teach in and paragraph 0021 sample sizes as small a 1 ml, which is in the range of claims 11-14.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to use the computer controlled robot of Kolosov et al with the elastomer testing protocol of Francisco et al.

One of ordinary skill in the art would have been motivated to use the computer controlled robot of Kolosov et al with the elastomer testing protocol of Francisco et al because of the need to reduce time in analyzing samples and it would be especially attractive to rapidly test a plurality of samples on a common substrate, as noted by Kolosov et al in paragraph 0005.

One of ordinary skill in the art would have had a reasonable expectation of success in combining the computer controlled robot of Kolosov et al with the elastomer testing protocol of Francisco et al because Kolosov et al has applied the computer controlled robot toward rheological studies (e.g. viscosity or elasticity). Therefore it would not have been unreasonable to apply the computer controlled robot as part of the method of Francisco et al because tensile strength is directly related to elasticity.

Francisco et al in view of Kolosov et al do not teach thermal conditioning of an elastomer at a temperature at about 100-200 degrees C for about 20 hours to about 60 hours, prior to immersing the elastomer in the oil/additive sample, such as set forth in claims 15 and 16.

Chaffee et al teach, throughout the document and especially column 2, line 43 thermal conditioning of a rubber stock at 177 degrees C for 22 hours.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to apply the thermal conditioning of Chaffee et al. toward the elastomer testing protocol of Francisco et al in view of Kolosov et al

One of ordinary skill in the art would have been motivated to use the thermal conditioning of Chaffee et al in the elastomer testing protocol of Francisco et al in view

of Kolosov et al because it would have provided an improved compression set, as noted by Chaffee et al in column 1, line 42.

One of ordinary skill in the art would have had a reasonable expectation of success in combining the thermal conditioning of Chaffee et al with the elastomer testing protocol of Francisco et al in view of Kolosov et al because Chaffee et al had applied thermal conditioning to silicone rubber. Therefore it would not have been unreasonable to apply thermal conditioning to the method of Francisco et al in view of Kolosov et al because silicone rubber is used for elastomers, such as discussed by Chaffee et al in the abstract.

Francisco et al in view of Kolosov et al further in view of Chaffee et al do not explicitly state an elastomer made from synthetic rubber, such as set forth in claim 4 or an elastomer elongation measurement compared to a predetermined measurement of the elastomer, as set forth in claim 10.

Migdal et al teach throughout the document and especially the abstract polysuccinimide compositions as dispersants for lubricating motor oils, which have greater compatibility with synthetic rubbers such as Viton ® engine seals.

Said Viton ® engine seals reads on claim 4.

Migdal et al in columns 13-14 teach testing compatibility of Viton ® engine elastomer seals with said dispersants for both tensile strength and elongation (see table II concerning % change in elongation upon contact with said polysuccinimide compositions). The original (prior to oil contact) elongation of the Viton ® engine seal is taken as the predetermined elongation measurement of claim 10.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to test the amount of elongation in synthetic rubber elastomers upon treatment with additives such as dispersants per Migdal et al using the apparatus and/or protocol (system) afforded by the combined teachings of Francisco et al in view of Kolosov et al further in view of Chaffee et al.

One of ordinary skill in the art would have been motivated to test the amount of elongation in synthetic rubber elastomers upon treatment with additives such as dispersants per Migdal et al using the system afforded by the combined teachings of Francisco et al in view of Kolosov et al further in view of Chaffee et al because: (i) it is important that elastomer seals do not degrade in internal combustion engines and (ii) motor oil additives to prevent sludge and rust formation in modern engines must withstand imposed stresses such as low temperature stop-and-go service and high temperature conditions produced by high speed driving, as discussed by Migdal et al in column 2 lines 61-66 and column 1 lines 15-25.

One of ordinary skill in the art would have had a reasonable expectation of success in applying the apparatus and/or protocol afforded by the combined teachings of Francisco et al in view of Kolosov et al further in view of Chaffee et al toward analyzing the amount of elongation in synthetic rubber elastomers upon treatment with additives such as dispersants per Migdal et al because each reference concerns treatments for better performing rubber compositions (e.g. see Kolosov application claim 19; Chaffee et al abstract et al ; Migdal et al abstract; Francisco et al example 3 concerning silicone elastomers) In other words, the teachings of Migdal et al are well

within the scope of technology according to each of Francisco et al, Kolosov et al and Chaffee et al.

Francisco et al in view of Kolosov et al further in view of Chaffee et al and even further in view of Migdal et al do not teach the computer modeling and lead candidate oil mixtures in a plurality of test receptacles having varying percentages of additives such as set forth in claims 1a and 1b.

Wollenberg et al teach, throughout the document and especially the abstract figure 1, an automated device for analyzing oil mixture compositions.

Claim 1a of the Wollenberg et al publication teaches conducting molecular modeling of at least one base oil of lubricating viscosity and at least one lubricating oil additive to provide leading candidates of the at least one base oil of lubricating viscosity and the at least one lubricating oil additive for combination to formulate a leading candidate lubricating oil composition sample for testing as set forth in present claim 1a. Claim 1b of the Wollenberg et al publication includes containing a plurality the leading candidate lubricating oil composition samples comprising (i) a major amount of at least one base oil of lubricating viscosity and (ii) a minor amount of at least one lubricating oil additive in varying percentages in a plurality of test receptacles, reading on present claim 1b.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to use computer modeling and add lead candidate oil mixtures to a plurality of test receptacles having varying percentages of additives in the manner of Wollenberg et al to evaluate rubber elastomer compatibility therewith

such as described in the combined references of Francisco et al, Kolosov et al, Chaffee et al and Migdal et al

One of ordinary skill in the art would have been motivated to use computer modeling and add lead candidate oil mixtures to a plurality of test receptacles having varying percentages of additives in the manner of Wollenberg et al to evaluate rubber elastomer compatibility therewith such as described in the combined references of Francisco et al, Kolosov et al, Chaffee et al and Migdal et al because the lubricant industry requires a more efficient, economical and systematic approach for developing lubricating oil compositions as noted by Wollenberg et al in paragraph 0009, which, in fact, reflects known work in one field of endeavor (computer modeling and automated screening) prompting variations of it for use in either the same field or a different one (lubrication) based on design incentives or other market forces in accordance with MPEP 2141 section III and *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385, 1396 (2007).

One of ordinary skill in the art would have had a reasonable expectation of success in utilizing the computer modeling and adding lead candidate oil mixtures to a plurality of test receptacles having varying percentages of additives per Wollenberg et al for analyzing elastomer compatibility per the combined references of Francisco et al, Kolosov et al, Chaffee et al and Migdal et al because the requisite computer modeling software has already been developed, as evidenced by Wollenberg in paragraphs 0048-0049 and preparing different concentrations of materials to add to different tubes with rubber elastomer seals therein would not challenge the skilled artisan.

In conclusion, the claimed invention was within the ordinary skill in the art to make and use at the time the claimed invention was made and was as a whole, prima facie obvious.

35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps concern the step of outputting comprises storing the result of step (c) whereas step (c) of claim 1, from which claim 19 depends is draw to providing an elastomer, thus there is no result to output. *For the purposes of this office action, claim 19 has been interpreted as referring to step (d).*

Claim 20 recites the limitation "the result of step (d) " in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. *For the purposes of this office action, the result referred to in claim 20 has been taken as step (e) of claim 1.*

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER M. GROSS whose telephone number is (571)272-4446. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on 571 272 0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher M Gross
Examiner
Art Unit 1639

cg

/ Christopher S. F. Low /
Supervisory Patent Examiner, Art Unit 1639